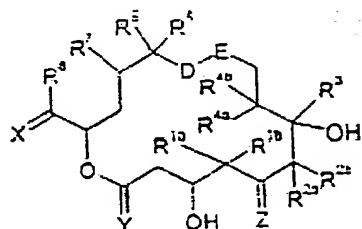


# Listing of Claims:

1. (Previously amended) An epothilone compound of formula I,



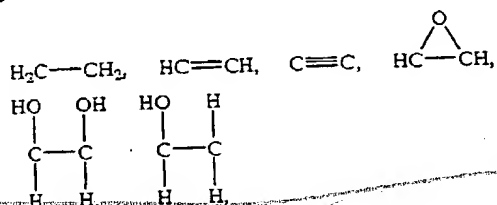
in which

$R^{1a}, R^{1b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl, or together a  $-(CH_2)_m$  group with  $m = 2, 3, 4$  or  $5$ ,

$R^{2a}, R^{2b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl or together a  $-(CH_2)_n$  group with  $n = 2, 3, 4$  or  $5$ , whereby, if  $-D-E-$  stands for  $-CH_2-CH_2-$  or  $Y$  stands for an oxygen atom,  $R^{2a}$  and  $R^{2b}$  cannot be hydrogen or methyl,

$R^3$  means hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl,

$R^{4a}, R^{4b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl or together a  $-(CH_2)_p$  group with  $p = 2, 3, 4$  or  $5$ ,



D-E means a group

$R^5$  means hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl,

$R^6, R^7$  each mean a hydrogen atom, together an additional bond or an oxygen atom,

$R^8$  means hydrogen,  $C_1$ - $C_{20}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl, which can all be substituted,

$X$  means an oxygen atom, two alkoxy groups  $OR^{23}$ , a  $C_2$ - $C_{10}$  alkylene- $\alpha, \omega$ -dioxy group, which can be straight-chain or branched,  $H/OR^9$  or a grouping  $CR^{10}R^{11}$ ,

whereby

$R^{23}$  stands for a  $C_1$ - $C_{20}$  alkyl radical,

$R^9$  stands for hydrogen or a protective group  $PG^x$ ,

$R^{10}, R^{11}$  are the same or different and stand for hydrogen, a  $C_1$ - $C_{20}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl radical or  $R^{10}$  and  $R^{11}$  together with the methylene carbon atom together stand for a 5- to 7-membered carbocyclic ring,

$Y$  means an oxygen atom or two hydrogen atoms,

$Z$  means an oxygen atom or  $H/OR^{12}$ ,

whereby

$R^{12}$  means hydrogen or a protective group  $PG^2$ .

2. (Previously amended) An epothilone compound of formula I according to claim 1, in which Y, Z,  $R^{1a}$ ,  $R^{1b}$ ,  $R^{2a}$  and  $R^{2b}$  all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

3. (Previously amended) An epothilone compound of formula I according to claim 1, in which  $R^3$ ,  $R^{4a}$ ,  $R^{4b}$ , D-E,  $R^5$ ,  $R^6$  and  $R^7$  all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

4. (Previously amended) An epothilone compound of formula I according to claim 1, in which  $R^6$ ,  $R^7$ ,  $R^8$  and X all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

5. (Previously amended) An epothilone compound of formula I according to claim 1, in which Y, Z,  $R^{1a}$ ,  $R^{1b}$ ,  $R^{2a}$ ,  $R^{2b}$ ,  $R^3$ ,  $R^{4a}$ ,  $R^{4b}$ , D-E,  $R^5$ ,  $R^6$  and  $R^7$  all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

6. (Previously amended) An epothilone compound of formula I according to claim 1, in which Y, Z,  $R^{1a}$ ,  $R^{1b}$ ,  $R^{2a}$ ,  $R^{2b}$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and X all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

7. (Previously amended) An epothilone compound of formula I according to claim 1, in which  $R^3$ ,  $R^{4a}$ ,  $R^{4b}$ , D-E,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and X all can have the meanings that are indicated in formula I, and the remainder of the molecule is identical to naturally occurring epothilone A or B.

8. (Previously amended) A compound of formula I, namely  
(4S,7R,8S,9S,13(Z),16S(E))-4,8-Dihydroxy-7-ethyl-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione,

(4S,7R,8S,9S,13E,16S(E))-4,8-dihydroxy-7-ethyl-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione (B),

(1S,3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione ,

(1R,3S(E),7S,10R,11S,12S,16S)-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1S,3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione ,

(1R,3S(E),7S,10R,11S,12S,16R)-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7S,8R,9S,13Z,16S(E))-4,8-Dihydroxy-7-ethyl-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione,

(4S,7S,8R,9S,13E,16S(E))-4,8-dihydroxy-7-ethyl-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione,

(1S,3S(E),7S,10S,11R,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R,3S(E),7S,10S,11R,12S,16S)-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1S,3S(E),7S,10S,11R,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R,3S(E),7S,10S,11R,12S,16S)-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-ethyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(Z),16S(E))-4,8-Dihydroxy-5,5,7,9,13-pentamethyl-16-((3-pyridyl)ethenyl)-1-oxa-cyclohexadec-13-ene-2,6-dione,

(4S,7R,8S,9S,13E,16S(E))-4,8-dihydroxy-5,5,7,9,13-pentamethyl-16-((3-pyridyl)ethenyl)-1-oxa-cyclohexadec-13-ene-2,6-dione,

(1S,3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-8,8,10,12,16-pentamethyl-3-((3-pyridyl)ethenyl)-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1S,3S(E),7S,10R,11S,12S,16S)-7,11-dihydroxy-8,8,10,12,16-pentamethyl-3-((3-pyridyl)ethenyl)-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(Z),16S(E))-4,8-Dihydroxy-5,5,7,9,13-pentamethyl-16-((4-pyridyl)ethenyl)-1-oxa-cyclohexadec-13-ene-2,6-dione,

(4S,7R,8S,9S,13E,16S(E))-4,8-dihydroxy-5,5,7,9,13-pentamethyl-16-((4-pyridyl)ethenyl)-1-oxa-cyclohexadec-13-ene-2,6-dione,

(1S,3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-8,8,10,12,16-pentamethyl-3-((4-pyridyl)ethenyl)-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1S,3S(E),7S,10R,11S,12S,16S)-7,11-dihydroxy-8,8,10,12,16-pentamethyl-3-((4-pyridyl)ethenyl)-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-7-phenyl-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione,  
(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-phenyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-10-phenyl-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-7-Benzyl-4,8-dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,9,13-tetramethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-10-Benzyl-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-10-Benzyl-7,11-dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,7,13-tetramethyl-9-trifluoromethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,16-tetramethyl-12-trifluoromethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,16-tetramethyl-12-trifluoromethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,11E/Z,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,7,9,13-pentamethyl-cyclohexadec-11,13-diene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,14E/Z,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,14E/Z,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,7,9,13-pentamethyl-cyclohexadec-13-ene-11-ene-2,6-dione

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,7,9-tetramethyl-13-trifluoromethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12-tetramethyl-16-trifluoromethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12-tetramethyl-16-trifluoromethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-13-pentafluoroethyl-5,5,7,9-tetramethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-16-pentafluoroethyl-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-16-pentafluoroethyl-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5-(1,3-trimethylene)-7,9,13-trimethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8-(1,3-trimethylene)-10,12,16-trimethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8-(1,3-trimethylene)-10,12,16-trimethyl-4,17-dioxabicyclo[14.1.0]heptadeca-5,9-dione,

(4S,7R,8S,9S,11E/Z,13(E or Z),16S(E))-4,8-Dihydroxy-13-ethyl-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-5,5,7,9-tetramethyl-cyclohexadec-11,13-diene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,14E/Z,16R)-7,11-Dihydroxy-16-ethyl-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,14E/Z,16S)-7,11-Dihydroxy-16-ethyl-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(4S,7R,8S,9S,11E/Z,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-1-oxa-13-propyl-5,5,7,9-tetramethyl-cyclohexadec-11,13-diene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,14E/Z,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-16-propyl-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,14E/Z,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-16-propyl-8,8,10,12-tetramethyl-4,17-dioxabicyclo[14.1.0]heptadec-14-ene-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-pyridyl)ethenyl)-1-oxa-5,5,7,9,13-pentamethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-pyridyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-pyridyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(4-pyridyl)ethenyl)-1-oxa-5,5,7,9,13-pentamethyl-cyclohexadec-13-ene-2,6-dione,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(4-pyridyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

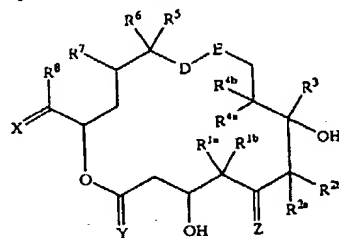
(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(4-pyridyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadecane-5,9-dione,

(4S,7R,8S,9S,13(E or Z),16S(E))-4,8-Dihydroxy-16-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-5,5,7,9,13-pentamethyl-cyclohexadec-13-en-6-one,

(1(S or R),3S(E),7S,10R,11S,12S,16R)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-9-one,

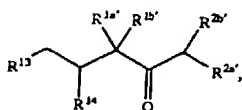
(1R or S),3S(E),7S,10R,11S,12S,16S)-7,11-Dihydroxy-3-(1-methyl-2-(2-methyl-4-thiazolyl)ethenyl)-8,8,10,12,16-pentamethyl-4,17-dioxabicyclo[14.1.0]heptadec-9-one.

9. (Previously amended) Process for the production of an epothilone compound of formula I according to claim 1



in which

the substituents have the meanings that are indicated in formula I, wherein a fragment of general formula A



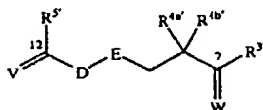
in which

$R^{1a'}$ ,  $R^{1b'}$ ,  $R^{2a'}$  and  $R^{2b'}$  have the meanings already mentioned for  $R^{1a}$ ,  $R^{1b}$ ,  $R^{2a}$  and  $R^{2b}$ ,

$-R^1$  means  $CH_2OR^{13a}$ ,  $CH_2-Hal$ ,  $CHO$ ,  $CO_2R^{13b}$ ,  $COHal$ ,

$R^1$  means hydrogen,  $OR^{14a}$ ,  $Hal$ ,  $OSO_2R^{14b}$ ,

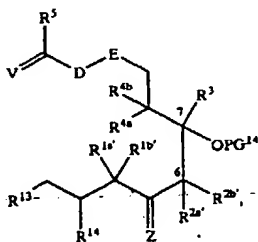
$R^{13a}, R^{14a}$  mean hydrogen,  $SO_2$ -alkyl,  $SO_2$ -aryl,  $SO_2$ -aralkyl or together a  $-(CH_2)_o$  group or together a  $CR^{15a}R^{15b}$  group,  
 $R^{13b}, R^{14b}$  mean hydrogen,  $C_1$ - $C_{20}$  alkyl, aryl,  $C_1$ - $C_{20}$  aralkyl,  
 $R^{15a}, R^{15b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl or together a  $-(CH_2)_q$  group,  
 Hal means halogen,  
 o means 2 to 4,  
 q means 3 to 6,  
 including all stereoisomers as well as their mixtures, and  
 free hydroxyl groups in  $R^{13}$  and  $R^{14}$  can be etherified or esterified, free carbonyl groups can be ketalized in A and  $R^{13}$ , converted into an enol ether or reduced, and free acid groups in A can be converted into their salts with bases,  
 is reacted with a fragment of general formula B



B

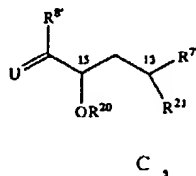
in which

$R^3, R^{4a}, R^{4b}$  and  $R^5$  have the meanings already mentioned for  $R^3, R^{4a}, R^{4b}$  and  $R^5$ ,  
 V means an oxygen atom, two alkoxy groups  $OR^{17}$ , a  $C_2$ - $C_{10}$  alkylene- $\alpha,\omega$ -dioxy group, which can be straight-chain or branched or  $H/OR^{16}$ ,  
 W means an oxygen atom, two alkoxy groups  $OR^{19}$ , a  $C_2$ - $C_{10}$  alkylene- $\alpha,\omega$ -dioxy group, which can be straight-chain or branched or  $H/OR^{18}$ ,  
 $R^{16}, R^{18}$ , independently of one another, mean hydrogen or a protective group  $PG^1$   
 $R^{17}, R^{19}$ , independently of one another, mean  $C_1$ - $C_{20}$  alkyl,  
 to a partial fragment of general formula AB



AB ,

in which  $R^{1a'}$ ,  $R^{1b'}$ ,  $R^{2a'}$ ,  $R^{2b'}$ ,  $R^3$ ,  $R^{4a}$ ,  $R^{4b}$ ,  $R^5$ ,  $R^{13}$ ,  $R^{14}$ , D, E, V and Z have the meanings already mentioned, and  $PG^{14}$  represents a hydrogen atom or a protective group PG, and this partial fragment AB is reacted with a fragment of general formula C



in which

$R^8$  has the meaning already mentioned in general formula I for  $R^8$ , and

$R^7$  means a hydrogen atom,

$R^{20}$  means a hydrogen atom or a protective group  $PG^2$ ,

$R^{21}$  means a hydroxy group, halogen, a protected hydroxy group  $OPG^3$ , a phosphonium halide radical  $PPh_3^+Hal^-$  (Ph = phenyl; Hal = F, Cl, Br, I), a phosphonate radical  $P(O)(OQ)_2$  (Q =  $C_1$ - $C_{10}$  alkyl or phenyl) or a phosphine oxide radical  $P(O)Ph_2$  (Ph = phenyl),

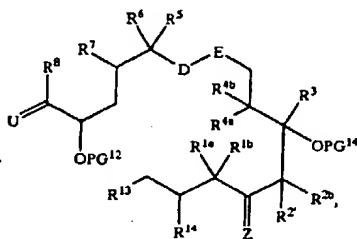
U means an oxygen atom, two alkoxy groups  $OR^{23}$ , a  $C_2$ - $C_{10}$  alkylene- $\alpha,\omega$ -dioxy group, which can be straight-chain or branched, H/ $OR^9$  or a grouping  $CR^{10}R^{11}$ ,

whereby

$R^{23}$  stands for a  $C_1$ - $C_{20}$  alkyl radical,

$R^9$  stands for hydrogen or a protective group  $PG^3$ ,

$R^{10}$ ,  $R^{11}$  are the same or different and stand for hydrogen, a  $C_1$ - $C_{20}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl radical or  $R^{10}$  and  $R^{11}$  together with the methylene carbon atoms together stand for a 5- to 7-membered carbocyclic ring, to a partial fragment of general formula ABC

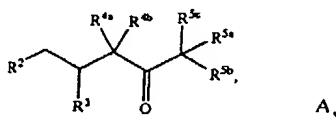


in which  $R^{1a'}$ ,  $R^{1b'}$ ,  $R^{2a'}$ ,  $R^{2b'}$ ,  $R^3$ ,  $R^{4a}$ ,  $R^{4b}$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$ ,  $R^{13}$ ,  $R^{14}$ , D, E, U and Z have the meanings already mentioned, and this partial fragment of general formula ABC is cyclized to an epothilone derivative of general formula I.

10. (Previously amended) A pharmaceutical composition comprising at least one compound of general formula I according to claim 1, as well as a pharmaceutically compatible vehicle.

11. (Previously amended) A method for the production of pharmaceutical agents comprising mixing a compound of formula I according to claim 1, together with a pharmaceutically compatible vehicle.

12. (Previously amended) A process for the production of a compound of formula A



in which

$R^2$  means  $CH_2OR^{2a}$ ,  $CHO$ ,  $CO_2R^{2b}$ ,  $COX$ ,

$R^{2a}$ ,  $R^{2b}$  mean hydrogen,  $C_1$ - $C_{20}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl,

$R^3$  means hydrogen,  $OR^{3a}$ ,  $X$ ,  $OSO_2R^{3b}$ ,

$R^{3a}$  means hydrogen or together with  $R^{2a}$  a  $-(CH_2)_n$  group or a  $CR^{6a}R^{6b}$  group,

$R^{3b}$  means  $C_1$ - $C_4$  alkyl, aryl,

$X$  means halogen,

$n$  means 2 to 4,

$R^{6a}$ ,  $R^{6b}$  are the same or different and mean  $C_1$ - $C_8$  alkyl,  $C_6$ - $C_{10}$  aryl

or together a  $-(CH_2)_0$  group,

$o$  means 3 to 6,

$R^{6a}$  additionally can assume the meaning of hydrogen,

$R^{4a}$ ,  $R^{4b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl,  $C_7$ - $C_{20}$  aralkyl

or together a  $-(CH_2)_m$  group,

$m$  means 2 to 5

$R^{5a}$ ,  $R^{5b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl,  $C_7$ - $C_{20}$  aralkyl or together a  $-(CH_2)_p$  group,

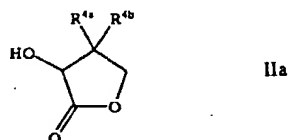
$p$  means 2 to 5

$R^{5c}$  means hydrogen,

including all stereoisomers and mixtures thereof, and

free hydroxyl groups can be etherified or esterified in  $R^2$  and  $R^3$ , free carbonyl groups can be ketalized in A and  $R^2$ , converted into an enol ether or reduced, and free acid groups in A can be converted into their salts with bases, wherein

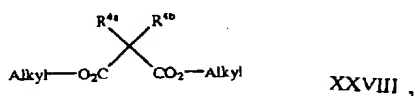
a) a pantolactone of formula IIa or



in which

$R^{4a}$  and  $R^{4b}$  in each case are methyl groups or

b) a malonic acid dialkyl ester of formula XXVIII



in which

$R^{4a}$ ,  $R^{4b}$ , which have the meaning that is indicated in formula A, and alkyl, independently of one another, mean a  $C_1$ - $C_{20}$  alkyl,  $C_3$ - $C_{10}$  cycloalkyl or  $C_4$ - $C_{20}$  alkylcycloalkyl radical, is used as a starting product.

13. (Withdrawn)

14. (Withdrawn)

15. (Withdrawn)

16. (Withdrawn)

17. (Withdrawn)

18. (Withdrawn)

19. (Withdrawn)

20. (Withdrawn)

21. (Withdrawn)

22. (Withdrawn)

23. (Withdrawn)

24. (Withdrawn)

25. (Withdrawn)

26. (Withdrawn)

27. (Withdrawn)

28. (Withdrawn)

29. (Withdrawn)

30. (Withdrawn)

31. (New) The compounds of claim 1, in which

$R^{2a}$ ,  $R^{2b}$  are the same or different and mean hydrogen,  $C_1$ - $C_{10}$  alkyl, aryl,  $C_7$ - $C_{20}$  aralkyl or together a  $-(CH_2)_n$  group with  $n = 2, 3, 4$  or  $5$ ,

whereby, if -D-E-, stands for

$-CH_2-CH_2-$  or Y stands for an oxygen atom, then  $R^{2a}$  and  $R^{2b}$  cannot be hydrogen or  $C_1$ - $C_{10}$  alkyl.